

Japanese Patent Laid-open No. 2005-168799A

Publication date : June 30, 2005

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Title : Hand Dryer

### Claims

1. A hand dryer that has a processing space in which hands can be inserted or extracted from an insertion port that is opened outside and inside which working air current generated by a jet generating unit is jetted to hands inserted into the processing space to blow away waterdrops attached to the hands based on motion energy in the working air current, wherein a center opening of the processing space is larger than openings on both sides of the processing space.
2. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the center opening and the openings on both sides are connected to be shaped in an almost arc.
3. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the center opening is formed to be in an almost arc.
4. The hand dryer according to claim 1, wherein the center opening of

the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is arranged in a direction in which hands are inserted or in a direction perpendicular to the direction in which hands are inserted in the processing space.

5. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is arranged in the direction in which hands are inserted on a side of palms of the hands and in the direction perpendicular to the direction in which hands are inserted on a side of the backs of the hands in the processing space.

6. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is formed to have a plurality of slits in the direction in which hands are inserted on the side of palms and in the direction perpendicular to the direction in which hands are inserted on the side of the backs in the processing space.

7. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is formed to have a plurality of slits in the direction in which hands are inserted on the side of palms and to have a plurality of almost arcs in the direction perpendicular to the direction in which hands are inserted on the side of the backs in the processing space.

8. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is formed to have a plurality of almost arcs in the direction in which hands are inserted on the side of palms and to have a plurality of slits in the direction perpendicular to the direction in which hands are inserted on the side of the backs in the processing space.

9. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is arranged in the direction in which hands are inserted on the side of the backs and in the direction perpendicular to the direction in which hands are inserted on the side of palms in the processing space.

10. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is formed to have a plurality of slits in the direction in which hands are inserted on the side of the backs and in the direction perpendicular to the direction in which hands are inserted on the side of palms in the processing space.

11. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is formed to have a plurality of

slits in the direction in which hands are inserted on the side of the backs and to have a plurality of almost arcs in the direction perpendicular to the direction in which hands are inserted on the side of palms in the processing space.

12. The hand dryer according to claim 1, wherein the center opening of the processing space is larger than the openings on both sides of the processing space, and the jet generating unit is formed to have a plurality of almost arcs in the direction in which hands are inserted on the side of the backs and to have a plurality of slits in the direction perpendicular to the direction in which hands are inserted on the side of palms in the processing space.

[0005]

In the conventional hand dryer, a problem arises in that hands may touch a processing space without a minimum size of processing space when hands are inserted, so that cleanliness is impaired. On the other hand, there is also a problem that, if a processing space is reduced as much as possible, it is impossible to reduce drying time because moisture attached to hands is blown away in the processing space to dry them based on motion energy of high-speed air current supplied to palms and the backs of the hands by inserting or extracting them.

[0006]

Thus, it is possible to quickly remove large size of waterdrops. However, there is also another problem that waterdrops still remain on surfaces of the hands or among fingers. It is considered to rub hands

together, however, it is necessary to increase a processing space. Then, motion energy of high-speed air current is reduced until air current hits hands, and a capacity to first blow away moisture is decreased.

[0008]

The present invention is made to solve the conventional problems. It is an object of the present invention to provide a hand dryer in which it is possible to hold a space enough to insert hands, reduce a distance between a blowing port of a nozzle and hands, and rub hands together because there is a large opening at the center of an insertion port.

[0012]

(First Embodiment)

As shown in Figs. 1 and 2, a body 1 fixed to a wall surface includes a main unit 2 that generates high-pressure air and a drying chamber 3 serving as a processing space to dry hands above the main unit 2. The main unit 2 includes a high-pressure seal unit 4 and a blower device 5 inside the high-pressure seal unit 4. The blower device 5 is communicated with the high-pressure seal unit 4. High-pressure air is changed to high-speed wind as working air current through a palm-side blowing nozzle 6 and a back-side blowing nozzle 7 as a jet generating unit that are arranged at the center of the drying chamber 3.

[0014]

In the configuration, it is easy to insert hands in the drying chamber 3

that is widely open at its center, and hands are not attached to the drying chamber 3 of the hand dryer that is already used when hands are inserted. When hands are inserted in the drying chamber 3, the detecting unit 9 detects them. Then, the detection output is turned on, the blower device 5 is operated through the control unit 8, high-speed wind that is sent through the palm-side blowing nozzle 6 and the back-side blowing nozzle 7 hits surfaces of hands, waterdrops attached to the hands are separated and dried, and separated waterdrops are attached to a side wall surface of the drying chamber 3 and naturally flow to the lower portion of the drying chamber 3.

[0016]

(Second Embodiment)

As shown in Figs. 3 and 9, the body 1 fixed to the wall surface includes the main unit 2 that generates high-pressure air and the drying chamber 3 serving as a processing space to dry hands above the main unit 2. The main unit 2 includes the high-pressure seal unit 4 and the blower device 5 inside the high-pressure seal unit 4. The blower device 5 is communicated with the high-pressure seal unit 4. High-pressure air is changed to high-speed wind as working air current through the palm-side blowing nozzle 6 and the back-side blowing nozzle 7 that are slit-shaped 11 as a jet generating unit and that are arranged at the center of the drying chamber 3. The longitudinal direction of the palm-side blowing nozzle 6 corresponds to the palm side of the hand. The palm-side blowing nozzle 6 is arranged on a lower-surface side of the drying chamber 3 to be perpendicular to an opening 10. Meanwhile, the longitudinal direction of the back-side blowing nozzle 7

corresponds to the back side of the hand. The back-side blowing nozzle 7 is arranged on an upper-surface side of the drying chamber 3 to be parallel to the opening 10.

[0020]

(Third Embodiment)

..... High-pressure air is changed to high-speed wind as working air current through the palm-side blowing nozzle 6 that is slit-shaped 11 and the back-side blowing nozzle 7 that has a multihole shape 12 as a jet generating unit both of which are arranged at the center of the drying chamber 3. The longitudinal direction of the palm-side blowing nozzle 6 corresponds to the palm of the hand. The palm-side blowing nozzle 6 is arranged on the lower-surface side of the drying chamber 3 to be perpendicular to the opening 10. Meanwhile, the longitudinal direction of the back-side blowing nozzle 7 corresponds to the back of the hand. The back-side blowing nozzle 7 is arranged on the upper-surface side of the drying chamber 3 to be parallel to the opening 10.

[0024]

(Fourth Embodiment)

..... High-pressure air is changed to high-speed wind as working air current through the palm-side blowing nozzle 6 that has a multihole shape 12 and the back-side blowing nozzle 7 that is slit-shaped 11 as a jet generating unit both of which are arranged at the center of the drying chamber 3. The longitudinal direction of the palm-side blowing nozzle 6 corresponds to the



palm of the hand. The palm-side blowing nozzle 6 is arranged on the lower-surface side of the drying chamber 3 to be perpendicular to the opening 10. Meanwhile, the longitudinal direction of the back-side blowing nozzle 7 corresponds to the back of the hand. The back-side blowing nozzle 7 is arranged on the upper-surface side of the drying chamber 3 to be parallel to the opening 10.

[0028]

(Fifth Embodiment)

.....High-pressure air is changed to high-speed wind as working air current through the palm-side blowing nozzle 6 that is slit-shaped 11 and the back-side blowing nozzle 7 as a jet generating unit both of which are arranged at the center of the drying chamber 3. The longitudinal direction of the palm-side blowing nozzle 6 corresponds to the palm of the hand. The palm-side blowing nozzle 6 is arranged on the lower-surface side of the drying chamber 3 to be parallel to the opening 10. Meanwhile, the longitudinal direction of the back-side blowing nozzle 7 corresponds to the back of the hand. The back-side blowing nozzle 7 is arranged on the upper-surface side of the drying chamber 3 to be perpendicular to the opening 10.

[0032]

(Sixth Embodiment)

.....High-pressure air is changed to high-speed wind as working air current through the palm-side blowing nozzle 6 that has a multihole shape 12 and the back-side blowing nozzle 7 that is slit-shaped 11 as a jet generating



unit both of which are arranged at the center of the drying chamber 3. The longitudinal direction of the palm-side blowing nozzle 6 corresponds to the palm of the hand. The palm-side blowing nozzle 6 is arranged on the lower-surface side of the drying chamber 3 to be parallel to the opening 10. Meanwhile, the longitudinal direction of the back-side blowing nozzle 7 corresponds to the back of the hand. The back-side blowing nozzle 7 is arranged on the upper-surface side of the drying chamber 3 to be perpendicular to the opening 10.

[0036]

(Seventh Embodiment)

.....High-pressure air is changed to high-speed wind as working air current through the palm-side blowing nozzle 6 that is slit-shaped 11 and the back-side blowing nozzle 7 that has a multihole shape 12 as a jet generating unit both of which are arranged at the center of the drying chamber 3. The longitudinal direction of the palm-side blowing nozzle 6 corresponds to the palm of the hand. The palm-side blowing nozzle 6 is arranged on the lower-surface side of the drying chamber 3 to be parallel to the opening 10. Meanwhile, the longitudinal direction of the back-side blowing nozzle 7 corresponds to the back of the hand. The back-side blowing nozzle 7 is arranged on the upper-surface side of the drying chamber 3 to be perpendicular to the opening 10.